

LaSalle Rail Yard
LaSalle County
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CERCLA

Site Reassessment



Prepared by:
Office of Site Evaluation
Division of Remediation Management
Bureau of Land

SITE REASSESSMENT

REPORT

for:

LaSalle Rail Yard

LaSalle, Illinois

ILP 000510177

LPC 0990306026

PREPARED BY:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

BUREAU OF LAND

DIVISION OF REMEDIATION MANAGEMENT

OFFICE OF SITE EVALUATION

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Section 1.0 Introduction

On January 7, 2016, the Illinois Environmental Protection Agency's (Illinois EPA) Office of Site Evaluation was tasked by the United States Environmental Protection Agency (U.S. EPA) Region V to conduct a Site Reassessment (SR) at the LaSalle Rail Yard site in LaSalle, LaSalle County, Illinois. (See Figure 1)

The Site Reassessment is performed under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) commonly known as Superfund. Current U.S. EPA policy stipulates that a Site Reassessment be conducted to determine the current status of the LaSalle Rail Yard, routinely referred to as "Rail Yard site". The Site Reassessment will consist of an evaluation of recent information to determine if further Superfund investigations are warranted. The Site Reassessment will supplement previous work, and is not intended to replace previous CERCLA assessments.

The Site Reassessment is designed to evaluate recent information that will help determine if the site qualifies for possible inclusion on the National Priorities List (NPL), or should receive a No Further Remedial Action Planned (NFRAP) designation. At the conclusion of the reassessment process Illinois EPA will recommend that the site be given a NFRAP designation, receive further Superfund investigations, or referred to another state or federal cleanup program.

The LaSalle Rail Yard site was initially placed on the Superfund Enterprise Management System (SEMS) database in March of 2007. This action was in response to the State of Illinois concerns that past site activities may have caused sediment contamination of the surface water drainage route, mainly the Illinois & Michigan Canal (I & M Canal).

The Site Reassessment Report will describe current site conditions and illustrate how the site has changed since the last CERCLA investigation in 2009. This

report will contain a summary of existing information that will include site history, current site conditions, evaluate past analytical data, and evaluate past remedial activities. The Site Reassessment will also support emergency response or time-critical removal activities if they are warranted.

Section 2.0 Site Description and Operational History

Section 2.1 Site Description

The LaSalle Rail Yard Site is located in the southeast portion of LaSalle, LaSalle County, Illinois in Section 14, Township 33 North, Range 1 East. The site is approximately 11 acres in size and located on top of a bluff above the I & M Canal and Illinois River at the northeast corner of the intersection of Rockwell Road, and Buck Street. For reference purposes, a central location in the rail yard corresponds to a latitude of 41.329744° and a longitude of -89.085541°. (See Figure 2)

The former rail yard is no longer active, and is currently divided into multiple commercial and residential parcels. Four of the major commercial properties have been outlined on Figure 3, Site Features Map.

Western Parcel:

The City of LaSalle owns the western parcel which houses their Water Department and water/sewer treatment operations and equipment.

Southwestern Parcels:

The two parcels making up the southwestern portions of the Rail Yard site (one on the north side and one on the south side of First Street) are zoned “commercial” and house small businesses.

Narrow Parcel:

A narrow parcel through the middle of the rail yard contains the two rail lines and

is owned by Bucci Unicem USA, which is a brick, mortar, and concrete company.

Southeastern Parcel:

Bucci also owns the southeastern parcel of the rail yard, south of First Street and north of Rockwell Road. Bucci uses the property and associated track to store rail cars temporarily. The tracks and property connect to the railroad bridge leading south across the I & M Canal and Illinois River.

Eastern Parcel:

Carus Chemical through an antiquated legal agreement with the Railroad retains ownership of the eastern parcel of the rail yard and the address listed for it by LaSalle County is Rail/Utility Row.

Canal and Union Streets form one of the nearest intersections to the site, just

southwest of the rail yard. The former rail yard is bordered to the south by Rockwell Road, the east by Buck Street, the west by Union Street, and extends just beyond U.S. Route 6 (Fifth Street) to the north. The rail yard is approximately 0.5 miles south of the Matthiessen and Hegeler Zinc Company Superfund Site and the Carus Chemical Company. The Illinois Cement Company is located less than 0.25 miles to the east of the rail yard and the I & M Canal is located less than 0.1 of a mile to the south of the rail yard. An estimated ten (10) residential properties can be found west of the rail yard, beyond Union Street. An additional five (5) residential properties are located to the southeast of the site area, beyond Buck Street. (See Figure 3)

The rail yard is generally vegetated and its exposed surface consists of mostly slag, cinders, and coal. There is a slight slope of the rail yard toward the south that would facilitate the flow of surface water toward the I & M Canal. The rail yard is elevated approximately 30 feet above the canal.

Beyond the southern boundary of the rail yard, is a 3.4-acre area identified as the

“drainage area” for the purposes of this report. The land surface in this area slopes sharply down approximately 30 feet towards the I & M Canal. The ground surface levels out near the railroad bed and tracks owned by the Chicago Rock Island and Pacific Rail Road Company. In addition to natural surface water drainage, several culvert pipes that travel beneath Rockwell Road appear to provide subterranean routes for excess surface water to travel south toward the I & M Canal.

Section 2.2 Operational History

In 1851, planning began for the Illinois Central Railroad to pass through the current location of the LaSalle Rail Yard. Prior to 1851, Illinois Central had a line that passed through town (heading north and south) near Bucklin Street. The Illinois Central Bridge was completed in 1854. The Illinois Central Railroad crossed the bridge, along the south end of the rail yard and spanned the I & M Canal and Illinois River.

In 1856 Frederick Matthiessen and Edward Hegeler migrated to the United States and began to plan what would later become the Matthiessen & Hegeler Zinc Company. In 1858 Matthiessen & Hegeler and Illinois Central Railroad began shipping zinc from northwestern Illinois and southwestern Wisconsin. Matthiessen & Hegeler and leased approximately one (1) acre of land adjacent to the tracks within the rail yard as part of this operation.

In the 1860s, Matthiessen & Hegeler Zinc Company obtained zinc ore almost exclusively from southwest Wisconsin. The ore was transported south on Illinois Central railroad to the plant, located on the northeast side of LaSalle adjacent to Illinois Central's tracks. In the years following the Civil War, an interchange was added in Illinois Central's rail yard connecting the Illinois Central (which was oriented north-south) with the Chicago Rock Island and Pacific Railroad (which traveled east-west). Shipments of ore from the west and southwest would be shipped to the facility via connections in Illinois Central's rail yard as evidenced by Matthiessen and Hegeler's ledgers. In addition to raw materials, Matthiessen

& Hegeler also used the railroads to transport its product via the rail yard. A

LaSalle County map of the area dated 1876 shows that the rail yard was well-

established with switching tracks, freight house, and depot. The 1876 LaSalle

County map identifies the rail yard property as "Illinois Central R. R. Grounds"

and identified tracks in the rail yard connecting Illinois Central rail road with

Chicago Rock Island and Pacific Railroad.

In addition to Matthiessen and Hegeler, other local industries shipped materials

through Illinois Central's rail yard.

Although Matthiessen & Hegeler minimized its use of the Illinois Central Railroad,

industrial activities in the rail yard continued to increase. As it expanded the

freight depot location was near the center of the yard among approximately eight

north-south rail lines.

Following the closure of the I & M Canal in 1933, the waters began to recede

and trees began to take over areas once occupied by the canal. By the 1970s the railroads experienced a “serious financial decline”. In the 1970s local groups began to clear the canal and in 1984 the United States Congress designated the I & M Canal route part of the National Heritage Corridor. The Illinois Department of Natural Resources currently owns and maintains the I & M Canal.

Matthiessen and Hegeler stopped operations in 1978. In the late 1980s Illinois Central Railroad abandoned the line from Bloomington to Freeport which ran through LaSalle and its rail yard. Currently, the only tracks that remain in the rail yard are associated with a spur line for the Bucci Unicem USA who owns the right-of-way in LaSalle. In 1986, the old Illinois Central freight house started on fire, and soon thereafter, the City of LaSalle proceeded to demolish the remaining structures in the rail yard. In 1991, the City of LaSalle purchased the portion of the rail yard west of the main line and built the city’s new water treatment plant and a salt dome on the property.

Section 3.0 CERCLA Investigative History

In June 2006, Illinois EPA conducted a Pre-CERCLIS Screening Assessment at the LaSalle rail yard and I & M Canal. The assessment was conducted because plans for recreational development of the I & M Canal may have required sediment removal that was potentially contaminated. In response to the identification of elevated concentrations of metals in the canal sediments and rail yard soils, the site was placed on Superfund Enterprise Management System (SEMS) in March of 2007. A CERCLA funded geophysical survey was also conducted in 2006, to locate a possible subterranean connection between the rail yard and canal.

Illinois EPA conducted a CERCLA Preliminary Assessment (PA) in 2008 which gathered additional information regarding past industrial use of the rail yard and canal following the completion of the PA, a Site Inspection (SI) was

recommended and subsequently conducted in 2009.

Section 3.1 Pre-CERCLIS Screening

In June 2006, Illinois EPA's Office of Site Evaluation conducted Pre-CERCLIS Screening Assessment field activities at the LaSalle rail yard and the nearby I & M Canal. During the 2006 Pre-CERCLIS Screening Assessment 59 soil samples were collected from the rail yard and a total of 94 sediment samples were taken from the 1.3-mile segment of the I & M Canal. The samples were collected in order to characterize current site conditions and determine if contamination has impacted surrounding human populations and/or ecological targets (Illinois EPA, Pre-CERCLIS). The samples were analyzed using a portable X-Ray Fluorescence (XRF) Spectrum Analyzer and a portion of the samples were also submitted to a laboratory for analysis.

The Pre-CERCLIS Screening Assessment investigation revealed that zinc, lead, and cadmium were primary contaminants of concern. In consideration of XRF and laboratory data, the investigation revealed that the highest concentrations of inorganic contaminants exist in the rail yard. Concentrations of zinc ranged from 805 ppm to greater than 94,000 ppm; lead concentrations ranged from 111 ppm to 1900 ppm; and cadmium concentrations ranged from 14 ppm to 230 ppm.

Cinders, slag, and coal were noted to be present throughout the rail yard.

Elevated levels of inorganic contamination were associated with that material.

The same group of metals was identified by soil and waste samples previously collected at the Matthiessen & Hegeler Zinc Company site.

Elevated levels of zinc, lead, and cadmium were also detected within the sediments of the I & M Canal. In the I & M Canal, the highest concentrations of inorganic contaminants were present downstream of the rail road bridge. (See Figure 3)

Section 3.2 CERCLA Geophysical Survey

In May of 2006, the Illinois State Geological Survey (ISGS) conducted a geophysical ground-penetrating radar survey for the Illinois EPA south of the rail yard. The ISGS performed the survey along two lines oriented east-west and located on the bluff south of Canal Street at the intersection with Union Street. Previous site visits reported observations of pipes “in the bluff south of Canal Street about 100 feet west of the foot of Union Street”. The survey was conducted in an attempt “to locate the northern extension of the pipes and trace them as far as possible towards their sources”. The investigation identified “several anomalies which are likely caused by either drain pipes or culverts” in the area between the rail yard and the I & M Canal.

Section 3.3 Preliminary Assessment (PA)

In 2008, Illinois EPA conducted a Preliminary Assessment (PA) at the LaSalle Rail Yard site. No samples were collected during the PA. The PA included several site visits, and research of: property ownership in the area; historical use of the area; and environmental investigations conducted in the area surrounding the site. At the conclusion of the PA, Illinois EPA recommended that the site undergo further evaluation in the CERCLA process.

Section 3.4 Site Investigation (SI)

In 2009, Illinois EPA conducted a Site Investigation (SI) based on the 2008 Preliminary Assessment (PA) at the LaSalle Rail Yard site.

One of the primary goals of the SI was to compare concentrations in the rail yard to surrounding soils to determine if historical activities conducted in the rail yard may have impacted soils in the surrounding area. Additionally, Illinois EPA wanted to evaluate the potential for a connection between the Matthiessen & Hegeler property and the rail yard. Residential properties were selected for

analysis based on proximity to the rail yard and the historical railroad path heading north to Matthiessen and Hegeler. The area to be sampled within each yard was selected in order to minimize potential historical impacts caused by other sources such as automobile traffic, paint scrapings and roof runoff, and to maximize the possibility for unimpeded aerial deposition of contaminants from the rail yard.

XRF samples were gathered in-situ from the soil surface and from one other depth from 0 – 6 inches below ground surface. A sampling layout was created for the yard of each resident whereby five locations were selected from an area equal in size and shape (a backyard, front yard, or side yard). Illinois EPA analyzed each location by XRF and then created a composite from the five locations and ran an additional XRF analysis on the composited soil. A total of 62 XRF readings were collected from nine residential properties. At each yard, one of the five XRF grab samples (typically the location with the greatest

concentrations) was selected for laboratory confirmation. As a result, nine soil samples were shipped off-site for laboratory analysis.

Illinois EPA conducted soil sampling and analysis at the rail yard and the historical railroad path heading north to Matthiessen and Hegeler. Illinois EPA conducted a total of 78 XRF readings from 39 locations. Generally, the XRF was used to test surface soil and one other depth from between 0 – 6 inches below ground surface at each location. A total of 8 soil samples were collected and sent to an off-site laboratory for confirmation of the XRF results.

Laboratory results from samples obtained during the SI allow for a comparison of concentrations in the rail yard to surrounding soils. In both the rail yard samples and the residential samples, only lead was found at concentrations three-times background. In the rail yard, lead was found at concentrations three-times background in two out of eight samples. In residential samples, lead was detected at concentrations three-times background in two out of nine samples. Comparison

of lead and zinc concentrations near the Matthiessen & Hegeler Zinc Facility, rail yard, and residential properties indicate that with the exception of a few locations, inorganic concentrations in the rail yard soils are not markedly different than residential soils in the region.

At the conclusion of this investigation the residential soil information was shared with the Illinois Department of Public Health (IDPH) and with Remedial Project Manager (RPM) at U.S. EPA for the Matthiessen and Hegeler Site.

Section 4.0 Associated Regional CERCLA Sites

Environmental investigations have been conducted at a number of facilities in the LaSalle area over the several years: Matthiessen and Hegeler Zinc Company (due north of the rail yard); Carus Chemical (also due north of the rail yard); LaSalle Electric Utilities (approximately 0.8 miles north-northwest of the rail yard); and Illinois Zinc (approximately 0.75 miles west-southwest of the rail yard).

Based on the proximity to the site and its connection via the Illinois Central

Railroad, investigations conducted at the Matthiessen and Hegeler Zinc

Company appear to be the most relevant to conditions at the LaSalle Rail Yard.

Past investigations of the LaSalle Rail Yard Site have identified other two sites

that share the surface water drainage route. They are the Matthiessen and

Hegeler Zinc Company and Illinois Zinc

Section 4.1 Matthiessen and Hegeler Zinc Company Site

In 1993, Illinois EPA conducted a CERCLA Integrated Site Assessment at the

Matthiessen and Hegeler Zinc Company site. The investigation included both soil

and sediment sampling from the Matthiessen and Hegeler site as well as

locations in the area surrounding the site.

The Matthiessen & Hegeler Zinc Company site is listed on the National Priorities

List (NPL) and is currently being investigated under NPL program (U.S. EPA,

Fact Sheet). Past on-site investigations at the Matthiessen & Hegeler Zinc Company identified zinc, lead, copper, cadmium, manganese, and nickel at concentrations significantly above background levels. In 2006 and 2007, as a part of the Remedial Investigation and Feasibility Study at the Matthiessen & Hegeler Zinc Company site, studies of metal concentrations in soils (primarily residential properties) were conducted in the area surrounding the Matthiessen & Hegeler site. The studies involved over 125 separate properties, many of which were near the La Salle Rail Yard site.

Comparison of lead and zinc concentrations near the Matthiessen & Hegeler Zinc Facility, rail yard, and residential properties indicate that with the exception of a few locations, inorganic concentrations in the rail yard soils are not markedly different than residential soils in the region.

The “potential connection” between the Matthiessen & Hegeler property and the rail yard could not be demonstrated by soil concentrations. For example,

concentrations of lead and zinc in the rail yard and along the historical rail road leading up to the Matthiessen & Hegeler Zinc Facility are not consistent throughout the length of the railway.

Section 4.2 Illinois Zinc Site

In 2016, the Illinois EPA conducted an Expanded Site Inspection (ESI) at the Illinois Zinc site. Analytical samples collected during the ESI investigation included, sediment samples from both the Illinois River and I&M Canal, background samples for each water body and soil samples from the original zinc smelter property and background soil samples.

Three sediment sample locations were located in the canal and down-stream of the rail yard. The location furthest up-stream and selected as a background sample location, had the highest levels of several inorganic contaminants. These contaminants include copper and zinc.

Due to the higher concentrations of located up-stream of the Illinois Zinc Site, attribution to that site could not be established.

Section 5.0 Site Reassessment Field Activities

Section 5.1 Sampling Activities

The field sampling activities were implemented from a work plan that was reviewed and approved by U.S. EPA.

During the Site Reassessment, all samples were collected in accordance with the Illinois EPA's Quality Assurance Project Plan (QAPP) and the Illinois EPA's Bureau of Land Sampling Procedures Guidance Manual. A hand auger was used to collect the sediment samples. The sediment material was then transferred directly into the sampling jars.

A total of nine sediment samples were collected in May of 2016. Three of these samples were background, two from the I&M Canal and one from the Little Vermilion River. (See Figure 4, and Table 1)

Section 5.2 Analytical Results

Inorganic sediment samples were the only type of samples collected during the Site Reassessment. This was based on several factors; the principal one being that the previous mentioned investigations defined inorganics as the contaminants of concern for area. Eurofins Spectrum Analytical, Inc., Rhode Island Division performed the Inorganic sample analysis (case number 46208).

The nine sediment samples (X201 – X209) were collected from nine locations.

Samples X201, X202 and X203 were collected for comparative background.

The remainder of the sediment samples were collected along the I & M Canal in order to determine if an attributable release may have occurred. Due to the terrain where the Little Vermilion passes under the canal, the sample team was

unable to collect any sediment samples along the Little Vermillion. (See Figure 4)

For the I & M Canal, the analytical results from Samples X202 and X203 were markedly different. Sample X203, the furthest up-stream sample, detected levels significantly higher than those reported by X202. The review of historic aerial photography of this area reveals that the location of X202 is in an area that could be subject to surging water conditions of the Little Vermillion River.

Due to that interference from the Little Vermillion River, all background comparisons for this report will be referenced to X203. The location of X203 is further up-stream on the I & M Canal, away from any possible influences from the Little Vermillion River.

The criteria used to determine an observed release is based upon analytical samples that are at least three times background concentrations. In the next

section, the actual samples are compared to the background level for each individual analyte for each matrix.

Concentrations identified in downgradient samples X204 through X209 were less than three-times the observed background concentrations and therefore did not meet the criteria for an observed release. (See Table 2, Inorganic Sediment Sample Results)

Section 6.0 Pathway Analysis

As identified in CERCLA's Hazard Ranking System, the Office of Site Evaluation evaluates three migration and one exposure pathway. Sites are evaluated on their known or potential impact these pathways have on human health and the environment. The following sections will evaluate the surface water, soil exposure, and groundwater migration pathways.

Section 6.1 Surface Water Pathway

The surface pathway starts where surface water run-off from the site enters the first perennial water body known as the probable point of entry (PPE). The PPE for this site historically was any point where site run-off enters either the Vermilion River or the I & M Canal. The Target Distance Limit (TDL) for the surface water pathway is 15 miles downstream of the PPE. Sediment sample X209 was collected at the PPE. This pathway terminates at the TDL which is located on the Illinois River as it turns southward just north of Hennepin, Illinois. (See Figure 5)

As stated earlier in this report natural surface water drainage appears to utilize several culvert pipes that travel beneath Rockwell Road toward the I & M Canal. One such culvert was located during the 2016 sediment sampling effort (described herein) and that location is provided on Figure 4. This information and the absence of a well-defined drainage route from the site to the Vermilion River makes the canal the immediate receptor and primary surface water drainage route for the rail yard.

The I & M Canal is a man-made water body that runs parallel to the Illinois River and is owned by the Illinois Department of Natural Resources. The width of the canal varies from approximately 200 feet near Lock 14 to approximately 50 feet throughout the remainder of the canal. The canal depth varies from approximately 11 feet near Lock 14 to approximately 2 feet throughout the rest of the canal. Based upon observations made during the Pre-CERCLIS investigation, a slight water flow from east to west exists within the canal. Surface water from the canal flows through small openings in Lock 14 into another segment of the I & M Canal just north of Huse Lake. After Lock 14, surface water continues to flow west for approximately 1.04 miles before emptying into the Illinois River. (See Figure 5)

The I & M Canal crosses over the Little Vermillion River in an aqueduct that was a part of the original canal design and construction. Under most circumstances, the waters of the I & M Canal and the Little Vermillion River never mix. However,

under flood conditions the Little Vermillion can rise up and overcome the height of the aqueduct, which was evidenced in September of 2008.

The canal contains a variety of fish species and is used for recreational fishing.

Local residents interviewed during the Pre-CERCLIS investigation indicated that they consume the fish caught from the canal. The canal is also being used for recreational purposes by the non- profit Canal Corridor Association that operates a mid-1800s canal boat replica that gives public passengers a one-hour boat ride on the canal. The boat ride originates at Lock 14 and heads eastward approximately 0.75 miles before returning via the same route.

According to data maintained by Illinois State Water Survey, there are no known surface water intakes used for drinking within the TDL of the surface water pathway. Federal Emergency Management Agency National Flood Insurance Maps indicate that the I & M Canal is located within the 100 year flood plain. The immediate area where the LaSalle Rail Yard is located in an area designated as minimal flooding.

The National Wetlands Inventory Map was reviewed for areas surrounding the I & M Canal and Illinois River located within the 15-mile TDL for the surface water pathway. A total of 88,088 feet wetlands frontage was identified within the 15-mile TDL. The majority of the wetlands along the 15-mile TDL are classified as Palustrine (dominated by persistent trees, shrubs, or emergent vegetation). (See Figure 5)

Based on the results of the sediment samples collected during the SR, no clear pattern emerged. As stated in the analytical section the furthest up-stream background sample on the I & M Canal had the higher levels than the background sediment sample collected closer to the PPE. Therefore, the SR was unable to establish attribution of these contaminants to the rail yard.

Section 6.2 Soil Exposure Pathway

This pathway evaluates surficial contamination and the likelihood that people and sensitive environments will be exposed to them. Section 3.4 summarizes the soil sample information collected as part of the Site Inspection at the rail yard.

Comparison of lead and zinc concentrations near the Matthiessen & Hegeler Zinc Facility, rail yard, and residential properties indicate that with the exception of a few locations, inorganic concentrations in the rail yard soils are not markedly different than residential soils in the region.

Section 6.3 Groundwater Pathway

This section discusses site-specific geology and soils, groundwater releases, and targets associated with the groundwater migration pathway at the site.

No groundwater samples were collected during the Site Reassessment or previous investigations. A review of an internal Oracle database maintained by the Illinois State Geological Survey identified groundwater wells located near the

investigative area. The City of LaSalle also provided information regarding groundwater wells in the area.

Several Community Water Supply wells owned by the City of LaSalle are located to the southeast of the site. Locations of Community Water Supply Wells in relation to the site were analyzed using GIS. There are three (3) active Community Water Supply Wells within $\frac{1}{4}$ mile of the site and an additional two (2) active Community Water Supply Wells located within $\frac{1}{4}$ mile to $\frac{1}{2}$ mile of the site. The wells draw water from the shallow sand and gravel aquifer and range in depth from 56 – 76 feet. The wells produce at rates of between 300 and 1000 gallons per minute. The City of LaSalle utilizes these wells as a drinking water source for approximately 9,700 residents. As of 2016, sample results from the closest of these wells to the site had no violations regarding inorganic contamination. Below is a population table for the 4-Mile Groundwater Target Distance Limit:

Population within four miles of the site

Distance (mi)	Population ¹
On-Site	0
0 – ¼ mile	1038
¼ - ½ mile	929
½ - 1 mile	4630
1 mile – 2 miles	7771
2 miles – 3 miles	9461
3 miles – 4 miles	1520

1. Source: United States Department of Commerce, 2000;
Illinois EPA, 2008 c.

There are also several private water supply wells within one mile of the site. A total of seven (7) private wells are located within ¼ mile of the site, six of which are owned by the City of LaSalle but are not used for their municipal system (There actual use is unknown). An additional seven (7) private wells are located within ¼ mile to ½ mile of the site, five of which are owned by the City of LaSalle. Six (6) private wells are located in between ½ mile and 1 mile from the site.

Although several private and municipal wells are located within ¼ mile of the site, the groundwater pathway is not considered a significant concern because

the inorganic contaminants of concern are not particularly mobile in silty clays found in the shallow soils beneath the surface of the site.

Geology and Soils

The geological features in the region of the site were shaped primarily by valleys created by running water of Illinois River and its tributaries, and glacier activity. A study conducted at the Matthiessen & Hegeler Zinc Site and surrounding area researched well logs within 5 miles of the site. The study found that well logs within 5 miles showed glacial deposits of primarily clay ranging from 10 – 100 feet in thickness. The average thickness of the clay deposits were 40 feet for the surrounding region and 10 near the site. Beneath the clay near the site is Pennsylvanian-age bedrock consisting of layers of shale, sandstone, limestone approximately 400 feet in thickness. Illinois Department of Public Health well logs from well construction reports from approximately 1 mile to north east confirm these findings and show small amount of top soil followed by approximately 10 feet of clay over sandstone, shale, and limestone in varying thicknesses.

The fine grained silty clay in the upper portion of the geologic materials at the site has a low permeability. Boring logs from monitoring wells at the Matthiessen Hegeler Site and water wells in the surrounding area indicate that the possibility exists for seams of sand and gravel which present higher hydraulic conductivities and potential for sub surface migration of contaminants. However, contaminants would first have to pass through the fill material and fine grained clay that comprises the shallow soils on the site.

Section 6.4 Air Pathway

A portion of the rail yard lacks vegetative cover. The lack of vegetation may enable particulate material to become suspended in the air during dry periods.

No data were collected during previous investigations to support the air pathway.

Section 7.0 Summary and Conclusion

The LaSalle Rail Yard site was initially placed on the Superfund Enterprise Management System (SEMS) database on January 7, 2016. This action was in response to the State of Illinois concerns that past site activities may have caused sediment contamination of the surface water drainage route.

In June 2006, Illinois EPA identified elevated concentrations of zinc, lead, and cadmium in a historic rail yard in LaSalle and in sediments of the I & M Canal which is located down gradient from the rail yard.

A CERCLA Preliminary Assessment conducted at the site in 2008 identified past industrial activities that took place in the rail yard and surrounding properties that justified recommending the site for a Site Inspection. Information presented in the PA also identified a physical and financial link between the Matthiessen and

Hegeler Zinc Company and the rail yard. This link was made by way of ore shipments (ore that was high in zinc concentrations and possibly high in lead and cadmium concentrations as well) that travelled through the rail yard on its way to the Matthiessen and Hegeler Zinc Company facility.

The highest concentrations of inorganics in sediments of the I & M Canal were in those samples collected down gradient of the rail yard. Elevated levels of zinc and lead were again found further down gradient in sediment samples collected from the canal near the former Illinois Zinc site. These samples were collected as part of an October, 2016 Expanded Site Inspection at the Illinois Zinc Site. This information prompted the collection of the additional sediment samples from the canal as part of the LaSalle Rail Yard Site Reassessment.

No clear pattern emerged from the release sediment sample results collected during the Site Reassessment to establish attribution from the rail yard to the

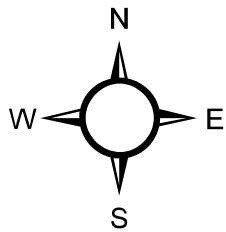
canal. The closest potential source on the I & M Canal is the Illinois Cement Company. The cement company is located on the north side of the canal near sediment sample X203.

Past CERCLA investigations have collected a large amount of soil data on the rail yard and surrounding area. The site inspection looked at all of this data as a whole and concluded that overall, with a few exceptions, the inorganic levels concentrations in the rail yard are not markedly different than the residential soils in the region. This information was shared with the Illinois Department of Public Health and the U. S. EPA RPM of the Matthiessen & Hegeler Site.

Section 8.0 References

- Illinois Environmental Protection Agency. Integrated Assessment, Matthiessen & Hegeler Zinc, Co. (Unpublished Report) , Bureau of Land Division File, Ref. No. LPC# 099 030 0031. 1994
- Illinois Environmental Protection Agency. Pre-CERCLIS Screening Assessment, LaSalle Rail Yard/Illinois & Michigan Canal. (Unpublished Report). Illinois EPA Bureau of Land Division File, Ref. No. LPC 099 030 6026, LaSalle Rail Yard/Illinois & Michigan Canal. January 25, 2007.
- Illinois Environmental Protection Agency. Preliminary Assessment, LaSalle Rail Yard. (Unpublished Report). Illinois EPA Bureau of Land Division File, Ref. No. LPC 099 030 6026, LaSalle Rail Yard. October 21, 2008.
- Illinois Environmental Protection Agency. Site Inspection, LaSalle Rail Yard. (Unpublished Report). Illinois EPA Bureau of Land Division File, Ref. No. LPC 099 030 6026, LaSalle Rail Yard. February 23, 2011.

LaSalle Rail Yard
Site



LaSalle Rail Yard
Figure 1, Site Location Map
LPC 0990306026 / ILP 000510177
5/16

LaSalle Rail Yard
Figure 2, Site Area Map
LPC 0990306026 / ILP 000510177
5/16



LaSalle Rail Yard

Little Vermilion River

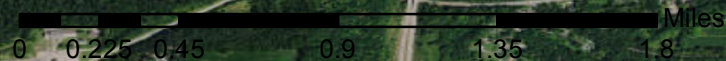
Illinois Zinc Co.

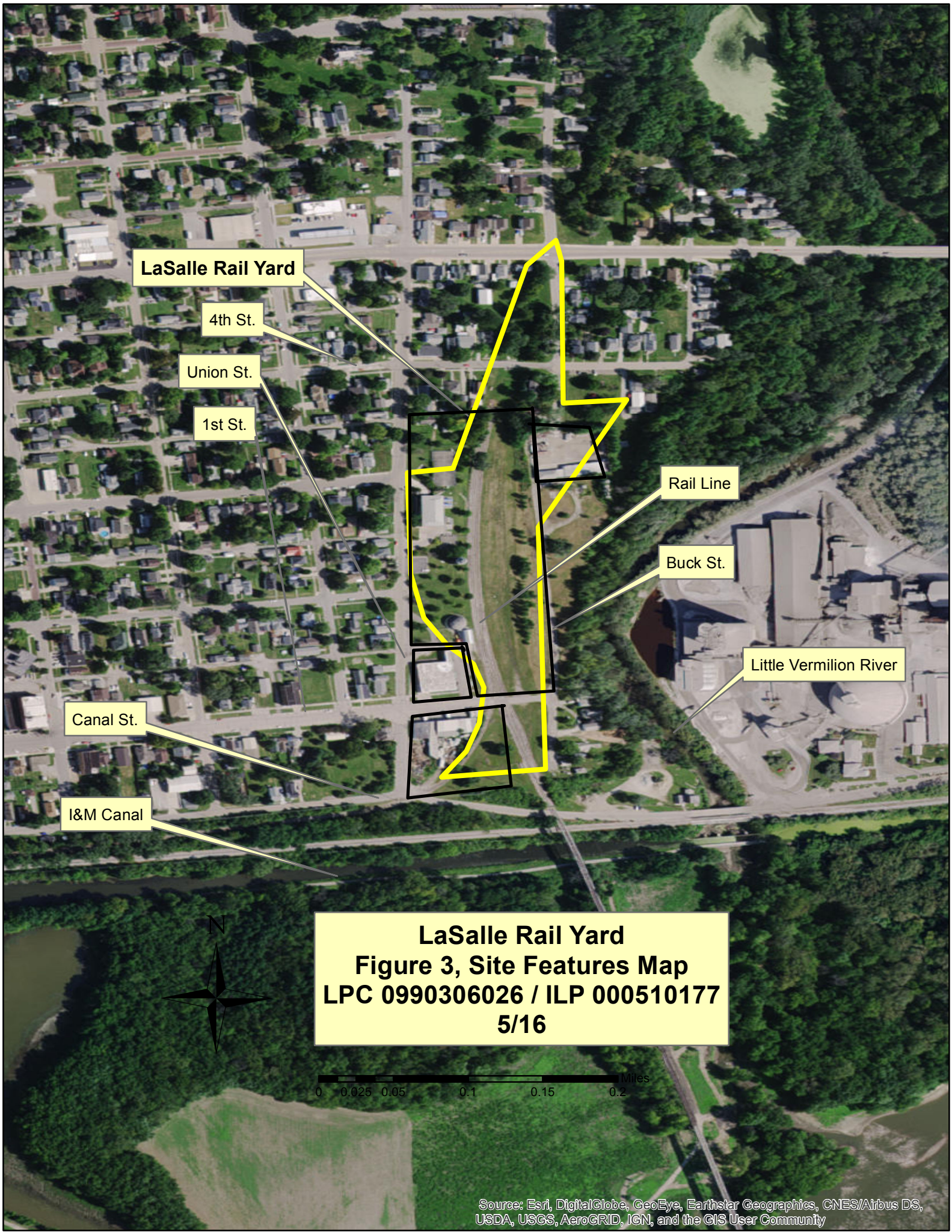
I&M Canal

IDNR Park

Interstate 39

Illinois River





LaSalle Rail Yard

4th St.

Union St.

1st St.

Canal St.

I&M Canal

Rail Line

Buck St.

Little Vermilion River

LaSalle Rail Yard
Figure 3, Site Features Map
LPC 0990306026 / ILP 000510177
5/16



0 0.025 0.05 0.1 0.15 0.2 Miles



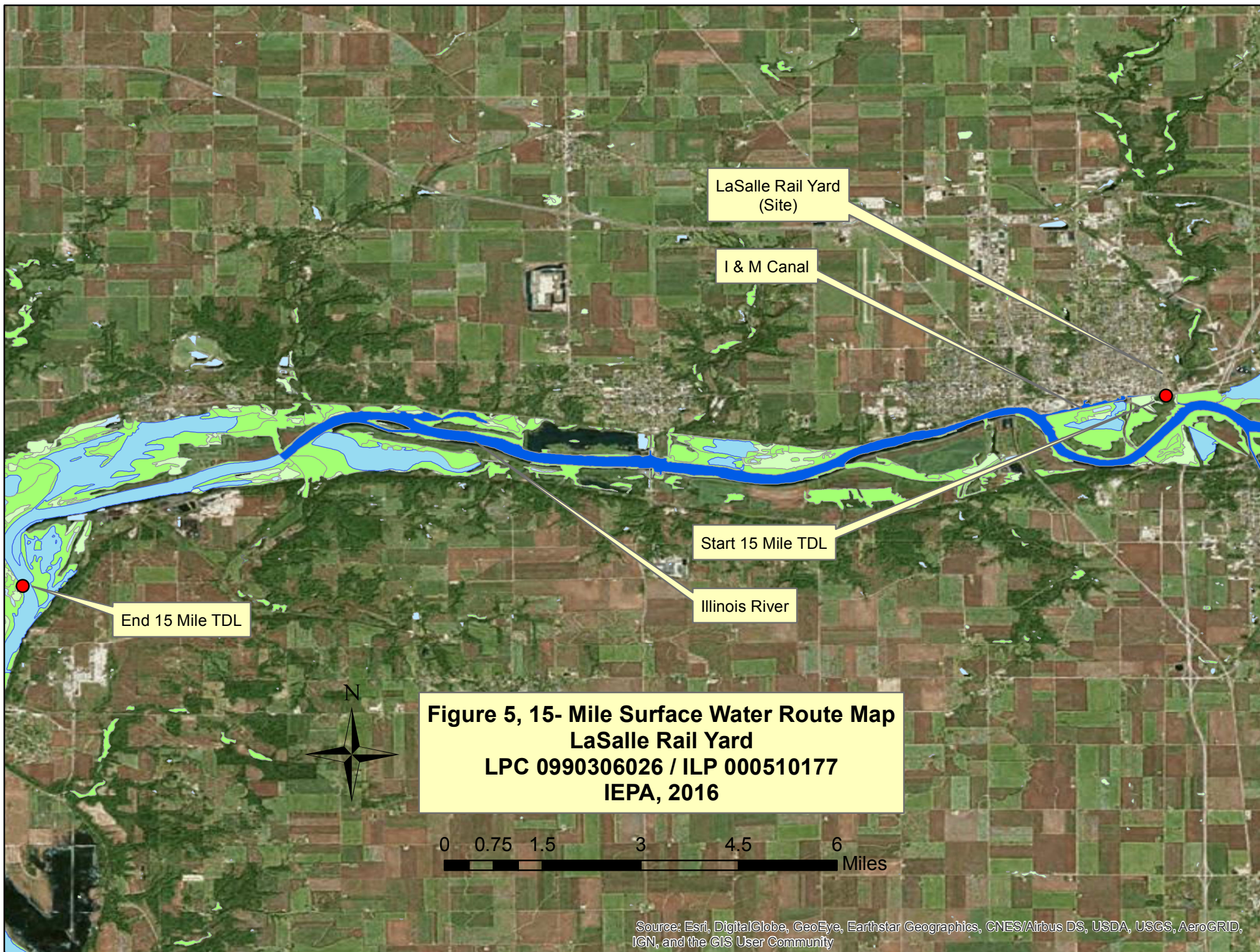


Table 1, Sediment Sample Descriptions

LASALLE RAIL YARD

IEPA 5/16

LPC 0990306026 / ILP 000510177

<i>Sample Number</i>	<i>Date/Time</i>	<i>Location</i>	<i>Appearance / Sampler Notes</i>
X201	5/26/16 @ 1215	Little Vermillion River (Background)	fast moving water 2-3', course tan-brown sand, small medium gravel, some silt
		West WWTP	
X204	5/26/16 @ 1430	I&M Canal, furthest down-stream location	4' of water, sampled from 3", fine, dark silt with very little sand
X205	5/26/16 @ 1515	I&M Canal	3' of water, sampled from 0-6", dark silt, some sand
X206	5/26/16 @ 1630	I&M Canal	6' of water, sampled from 0-6", dark silt, very fine sand
X207	5/26/16 @ 1645	I&M Canal	4' of water, sampled from 0-6", dark clay/silt, some very course sand
X208	5/26/16 @ 1700	I&M Canal	4' of water, sampled from 0-6", dark clay/silt, some very fine sand
X209	5/26/16 @ 1715	I&M Canal @ PPE (north bank of canal near end of dainage culvert)	3' of water, sampled from 0-6", dark clay/silt, course sand
X202	5/26/15 @ 1730	I&M Canal (Background)	4' of water, dark clay/silt, some course sand
X203	5/26/16 @ 1800	I&M Canal (Background)	4' of water, dark clay/silt, very fine sand, heavey water vegetation

Table 2, Key Inorganic Sediment Sample Results

LaSalle Rail Yard

IEPA 5/16

LPC 0990306026 / ILP 000510177

Factor		X203 Background (canal)	AV		3X	X204 (canal)	AV		X205 (canal)	AV		X206 (canal)	AV		X207 (canal)	AV		X208 PPE (canal)	AV		X209 PPE (canal)	AV	
Arsenic	1.35	10.4	N/A		30	10.2	N/A		11.9	N/A		10.3	N/A		10.3	N/A		12.5	N/A		13.1	N/A	
Copper	1.25	29.0	36.25	J	109	122	98	J	61.0	49	J	77.7	62	J	61.1	49	J	42.4	34	J	36.4	29	J
Lead	1.31	59.0	77	J	232	143	109	J	142	108	J	118	90	J	170	129	J	110	84	J	149	114	J
Zinc	1.29	467	602	J	1807	1260	977	J	864	670	J	654	507	J	1530	1186	J	716	555	J	790	612	J

J = Estimated Value

AV = Adjusted Value